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COMMENTARY

The global governance of pandemics

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On 17 March, 2020, exasperated by the unilateral measures of many EU member states to close borders and restrict free movement of essential healthcare goods, the editorial board of the *Financial Times* asked "whether public health should continue to be a sovereign responsibility." On May 29, President Trump announced that the USA would terminate its relationship with the World Health Organization, citing its subservience to China and mismanagement of the coronavirus pandemic. And on July 1, critics charged that the USA was undermining international cooperation by buying up most of the next three months' supply of remdesivir, one of two drugs believed to shorten the recovery time for COVID-19 patients (BBC News, 2020b).

This pandemic has thrown into sharp relief questions that have long bedeviled policymakers responsible for controlling disease. What is the appropriate distribution of powers between international organizations and nation states in the governance of global health? And to what extent is international or "global governance" in the health sphere feasible?

To shed light on these questions, I will consider the recent history of efforts to cope with cross-border health threats that set the stage for responses to the current pandemic, and then review the record of international cooperation in the face of COVID-19. I focus on two institutions at the center of such efforts, the European Union and the World Health Organization, and I close by drawing some conclusions from this record about the appropriate division of responsibility between national and international institutions and the factors conditioning the effectiveness of responses in each sphere.

EUROPE: A FRAGILE UNION

As the most developed of supranational organizations, we might expect the European Union to be at the forefront of international cooperation in matters of health. But the disease outbreaks of the last

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35 years have tested its competence in public health because decisions in this realm depend heavily on agreement among the member states. As the European Community grew from 6 states into a Union of 27, that agreement became harder to achieve, not least because national governments preferred to address social issues domestically (Greer et al., 2019: 29).

Bovine Spongiform Encephalopathy (BSE) in cattle was the first health threat to challenge European unity (Judt, 2001). In 1996, despite years of British denials, "mad cow disease" was linked to human health creating alarm about food safety across Europe. The German government finally agreed to slaughter its suspect cattle in order to control the outbreak within its borders only on condition that Brussels would share the $300 million bill. But the European Community budget was dependent on member states' contributions, and countries like Finland, which claimed that its herds were BSE-free, were reluctant to finance what they termed Germany's complacency. Europe had limited powers to enforce its injunctions: even when the Commission lifted its embargo on the export of British beef, France refused to remove its ban. Yet the BSE crisis had significant effects on the European governance of health: it increased public distrust of EU food safety regulation (Lynch & Vogel, 2001: 25) and agricultural policy and revealed that economic and political interests could trump health considerations and give rise to regulatory capture. This experience brought changes, namely an overhaul of the "*ad hoc* approach" to food regulation (Vos, 2000), the establishment in 2002 of a new regulatory agency, the European Food Safety Authority (Vincent, 2004), and the promotion of the precautionary principle in risk regulation—that "the absence of scientific certainty no longer justifies delaying the introduction of measures that could prevent potential harm" (Noiville, 2006: 307).

The next significant test case for European governance was the appearance in 2004–2006 of a potential pandemic—avian flu, which is extremely virulent in poultry and was transmitted to humans (mainly children, through backyard poultry) in Vietnam, Cambodia, and Thailand.

There was little person-to-person transfer of the disease, but the suspicion that viral mutation might create it caused global panic. This time vaccines and treatments were the issue that put pressure on European solidarity. Several EU countries generated pre-orders for influenza vaccines but declared that they would impose export limitations on vaccines manufactured within their borders (Bielitzki, 2007: 61). In the event, the pandemic did not materialize, but efforts to mobilize a collective response were unsuccessful. The EU Commission proposed the creation of a strategic stockpile of antiviral drugs, but three member states disagreed and most of the others refused to fund it, with the result that "each country must act for itself" (Ljunggren, 2006). The H1N1 or "swine flu" epidemic in 2009 saw similar resistance to sharing vaccines and medications and concern about this lack of cooperation produced an EU joint procurement mechanism 5 years later to provide for "medical countermeasures for different categories of cross-border health threats" (European Commission, 2014). Framework contracts for (only) pandemic influenza vaccines were signed in March 2019, but many member states did not sign up immediately to this voluntary mechanism (European Commission, 2019).

The threat of avian flu did lead to calls for "pandemic preparedness," but readiness entails preparation of a certain kind. That has become evident in the context of the current pandemic. Take ventilators, for example: when the coronavirus arrived, no European country had enough to meet the challenge except perhaps Germany, and it had to order an additional 10,000 ventilators from a domestic supplier (Buck & Ghiglione, 2020). Being prepared on this front would have required three things. The first is advance planning. But anticipating the need for equipment such as ventilators, and then budgeting for that need, is not a simple matter: these are expensive machines; they require maintenance and also trained staff—respiratory therapists—to operate them. Keeping enough on hand, therefore, entails both ongoing expenditure and manpower planning. In March it was revealed that none of the UK Government's key preparedness plans for pandemic influenza, published in 2011, 2012, and 2014, mentioned ventilators (Lambert, 2020). Moreover, no matter how forward-thinking plans are at

the national level, crucial decisions about equipment often fall to hospitals and local health planners who may baulk at including high-priced items of this nature in their annual budgets. And, during periods of austerity, which a number of European nations have experienced in recent years, longer-term considerations inevitably give way to more immediate priorities.

Ensuring an adequate supply of ventilators would also have required an expansion of domestic manufacturing capacity which the anticipated demand for ventilators did not produce. Italy's sole manufacturer of ventilators, used to producing only 125 per month, canceled all orders from abroad but that was not enough to supply domestic needs. Finally, this challenge demanded a mechanism for sharing scarce goods among EU states. The EU Civil Protection Mechanism of 2001 is such a mechanism but, when it was activated in March by Italy's request for additional protective equipment, no member state responded (Braw, 2020; see also De Pooter, 2020). As one advisor to the EU Commission said: "It is back to the future, where Italy is left on its own" (Hall et al., 2020).

By mid-March European solidarity was faltering. Germany, long a proponent of the EU single market, announced on March 4 that it was banning the export of protective medical supplies (Reuters, 2020). It then closed its western borders except for commercial traffic (BBC News, 2020a). Despite Commission pleas that such measures were "undermining collective efforts to contain the coronavirus" (Espinoza, 2020) every EU member state, except for Ireland, closed or put restrictions on its borders, which threatened to render the Common Travel Area meaningless (Herszenhorn & Wheaton, 2020) and created transport paralysis and long delays in moving food and healthcare supplies. Proposed initiatives to prevent an economic downturn, such as "coronabonds," or shared European debt, were resisted initially by Germany, revealing the same fault lines in the union that had emerged during the eurozone crisis 10 years earlier (Rankin, 2020). The choice of protectionism over cooperation was not surprising; as an EU official observed, "at a certain point solidarity no longer works because everyone is preoccupied with responding to their own emergencies" (Stockton et al., 2020).

Eventually, border restrictions were relaxed, export bans lifted, import duties on medical equipment suspended, and sharing of resources improved. France and Germany were able to broker an agreement on an EU recovery fund composed of both grants and loans (Fleming et al., 2020). Retrospective analyses of Europe's failure to contain COVID-19 have begun, designed to yield recommendations about how to forestall or protect against a future crisis. Yet Europe's experience with this pandemic so far mirrors the history of its attempts to contain disease: initiatives proceed in fits and starts, often precipitated by crises in specific areas, and generate reforms that address the administrative landscape in that area but do not lead to an overhaul of the system of governance (see Grönvall, 2001; Lezaun & Groenleer, 2006). Moreover, cross-state "preparedness" for a pandemic may involve complex strategies some of which cannot be implemented by Europe alone.

WHO: PROTECTOR OF GLOBAL HEALTH

At the global level, the principal organization entrusted with the task of coping with pandemics is the World Health Organization (WHO). And it is under fire. In addition to US charges of a cover-up and manipulation by China, the accusations against it include: failing to heed Taiwan's warnings (Manson & Cookson, 2020) in late December 2019 about the risks posed by the new virus (this in part because China has ensured that Taiwan is not treated in the WHO as an independent state and has had no "observer status" since 2018), refusing to advise China to close the live animal markets that were believed to be the source of the outbreak (Sengupta, 2020), waiting too long to recommend the wearing of masks, and asserting that the risk from asymptomatic carriers was low (although WHO then reversed itself on this issue).

Such allegations miss the essential point—the terms under which WHO was established mean that it is only as effective and interventionist as its member states allow it to be. Like the EU it is sustained by the contributions of its members, and it is hampered by its organizational structure. It is headquartered in Geneva but authority for response to an epidemic is vested in regional authorities and governed by the World Health Assembly (WHA), a cumbersome one-country, one-vote legislature that squabbles over budgets and policies. Its capacities are enshrined in a Constitution (1948) which permits certain actions and forbids others: WHO is instructed only to promote, assist, propose, standardize, maintain, stimulate, foster, furnish, establish, study and, above all, coordinate.

These directives circumscribe what WHO can do. It cannot enter a country to investigate the sources and spread of an epidemic unless invited to do so by the affected state. The 2003 SARS epidemic caused international consternation because China refused to admit that cases existed within its borders, and WHO thus had no power to investigate. Much of the criticism directed at the WHO Director's praise for China's actions over COVID-19 was based on a misunderstanding of its mandate. Without the power to force nations to provide information, "it is obliged," argues James Meek (2020), "to fall back on consensus, persuasion and flattery – in other words, diplomacy."

The organization does, however, have one important instrument in its arsenal—it can issue travel advisories. But though they carry considerable weight, WHO has no power to enforce them, and they have downsides. Canada was infuriated when WHO issued an advisory against travel to Toronto in May 2003 because of SARS, despite that city's claim to have limited the outbreak to hospitals (Kondro, 2003). Although the advisory was lifted a week later, it adversely affected trade and tourism and, some argued, made Toronto an international pariah (Mackay, 2003).

What, then, are WHO's core functions and how have they evolved over time? Are they fit for purpose in the face of a global pandemic?

Gathering information

SARS was the epidemic that literally rewrote the rules of global health governance, no mean feat in that this entailed changing a treaty, the International Health Regulations (IHR), governing the spread of infectious disease. The revisions stipulated that states would no longer be the sole authorities on disease outbreaks within their borders and that WHO could consider nongovernmental sources of information ranging from scientific reports to social media. The revised IHR was adopted in 2005 and entered into force in 2007.

Some commentators heralded these changes as ushering in a new "post-Westphalian" era of scientific cooperation and human rights in which public health would be recognized as a global public good (Fidler, 2003). But responses to the epidemics that followed suggest that this may have been overoptimistic.[1] State sovereignty over information is not the only barrier to building collective knowledge about the potential sources of a pandemic. One of the most poignant examples appeared in a letter to the New York Times in April 2015 titled "Yes, we were warned" (Dahn et al., 2015). Officials from Liberia's Ministry of Health described how during the 2014–2015 Ebola epidemic they had come across a 1982 study that analyzed frozen blood samples taken in 1978 and 1979 from 433 Liberians (Knobloch et al., 1982). The paper concluded: "Liberia has to be included in the Ebola virus endemic zone." But the results were published in a European journal and not disseminated in West Africa. The letter argued that "had the virologists' findings been linked to long-term efforts to train Liberians… to identify and stop epidemics… the outcome might have been different." In recent years, pressure against such "parachute research" has grown in the global scientific community, but the recommended solutions, including open source publication and the inclusion and crediting of local collaborators,

may not be enough to break down long-standing practices created by the norms of scientific publication and career-building pressures. Yet, this pandemic has gone some way to break down these barriers, at least for the moment. As an American researcher observed, "the ability to work collaboratively, setting aside your personal academic progress, is occurring right now because it's a matter of survival" (Apuzzo & Kirkpatrick, 2020).

The updated IHR regulations and the global community's censure of China for its handling of SARS did prompt faster revelations about the new coronavirus. There had been scattered reports in December 2019 of patients with lung conditions and pneumonias at different hospitals in Wuhan. An internal alert was posted by local health officials on 30 December. At the same time a Chinese doctor who was director of a hospital emergency department received a SARS coronavirus diagnosis in a patient, which she circulated to colleagues (McCarthy et al., 2020). This news spread online and on social media, so that by the next day international newspapers were reporting a cluster of 27 cases of an unusual pneumonia at a local seafood market. WHO also learned of the outbreak from ProMed the nonprofit network of disease spotters. It activated its incident management system on January 2, issued a warning on January 4 and followed up with a detailed report the next day. On 12 January, China submitted the genome sequence of the virus to the WHO. On January 20–21, a WHO field team visited China and reported that human-to-human transmission was occurring (Kuo, 2020).

The main brunt of criticism leveled at China, and therefore at the WHO which was relying on its information, concerned the timing of these last two measures, namely, that China knew in late December but did not admit that human to human transmission of SARS-CoV-2 was very likely (Yong, 2020), and that it could have sequenced the genome sooner (AP, 2020) so that a diagnostic test would have been available at least a week before Germany produced one on 16 January. These delays soon became fodder for President Trump's accusations that China had inflicted the pandemic on the world. To be sure, transparency was not complete, WHO was frustrated at the slow delivery of information, and much was made of China's refusal to publicize the concerns of a physician who later died of COVID-19. Nevertheless, the unfolding of the early days of the pandemic represented an advance in international cooperation.

Warning

WHO acquired another power from the revision of the IHR in 2005: states were required to notify the organization of events that might constitute a public health emergency of international concern (PHEIC). Considerable misunderstanding exists about the meaning of a PHEIC declaration. This is not a license for the WHO to roll into a country and enforce actions or impose sanctions, but rather to urge, persuade and cajole the global community into action. Since 2009, there have been only six PHEIC declarations, beginning with H1N1. In the latter case, WHO was accused, ironically, of moving too fast and inappropriately, announcing a PHEIC when the epidemic was still in Phase Three of a six-stage classification of influenza viruses.[2] The European Parliament argued later that some WHO officials had ties to international pharmaceutical companies that stood to gain from a high level of pandemic alert. And, indeed, this warning persuaded countries to purchase millions of dollars of vaccines and antivirals, which went unused when H1N1 proved to be much less severe than expected. Critics suggest that this controversy caused the WHO to delay calling the coronavirus a pandemic, although its officials claimed (March 11, 2020) that they hesitated to use the term in case it led governments and individuals to give up the fight.

In contrast, despite the injunction to heed reports of outbreaks from nongovernmental sources, WHO was excruciatingly slow to declare a PHEIC during the 2014 Ebola epidemic in West Africa.

Although the NGO, *Médecins Sans Frontières* (MSF), issued warnings throughout that spring, a PHEIC was not issued until August 8, 2014. Various reasons have been proffered for the delay: some say that WHO experts disagreed about the seriousness of the epidemic and worried that diverting funds to Ebola would undercut the affected countries' ability to deal with other pressing health problems like malaria (Garrett, 2015), others claim that the organization thought a PHEIC designation could devastate the economies of the affected countries and thus inhibit an effective response (Youde, 2020).

The WHO debated whether the novel coronavirus was a PHEIC on 23 January. Members of the IHR Emergency Committee (EC) of international experts (created in the wake of SARS) disagreed about whether there was enough evidence to declare one, but reconvened a week later and advised the Director-General to do so. At the same time, they recommended that the WHO should continue to explore the advisability of "creating an intermediate level of alert in a way that does not require reopening negotiations on the text of the IHR" (30 January 2020). Again, WHO had obviously learned from its experience with previous epidemics and action was faster, but its response was still fettered to some degree by the terms of the IHR and by unhappiness about the "all or nothing" nature of the PHEIC mechanism.

Instead of issuing travel advisories, the organization pleaded with countries *not* to impose travel or trade restrictions and cautioned "against actions that promote stigma or discrimination" and health measures that significantly interfered with international traffic. Countries that engaged in such actions—refusal of entry to travelers, for example—are obliged under the terms of the IHR to send the WHO the public health rationale for such actions within 48 hours of their implementation with the understanding that the WHO might urge them to reconsider. But many countries ignored these provisions and proceeded to close their borders, demonstrating yet again that the WHO can only negotiate with its member states and lacks the power to enforce its recommendations.

Alleviating: The production of remedies

Effective pharmaceuticals were always considered the key to controlling the pandemic and restarting economies. Producing them involved two daunting steps: first the development and manufacture of drugs and vaccines and, second, a method of ensuring their equitable distribution both within and among nations. Both presented significant challenges to global governance. "There is no global authority that has the money and the influence to direct what the private sector – the pharmaceutical industry – will do" said a former chair of the WHO committee on global immunization (Milne & Crow, 2020). Yet the last few decades have seen a variety of initiatives to do precisely that.

These initiatives were driven by in large part by the development of antiretroviral drugs for HIV/AIDS in the mid-1990s. The price tag of these drugs was set initially at around $10,000 per patient per year which made them unaffordable in developing nations and even for many patients in the developed democracies. As a result, a variety of flexibilities and exceptions were introduced to the WTO sponsored Trade-Related Aspects of Intellectual Property Rights (TRIPS) agreement of 1994 designed to protect nations' patents. By 2003 two amendments to TRIPS enabled countries to circumvent international patents in the name of public health by producing or importing cheaper generic drugs under certain conditions.[3]

Although international collaboration over pharmaceuticals did not always proceed smoothly in subsequent epidemics (efforts to develop drugs for the Ebola epidemic of 2014–2015 floundered), nevertheless an infrastructure of international norms and regulations was in place when COVID-19 appeared. In April 2020, at the urging of the European Union, WHO initiated a project, Access to

COVID-19 Tools Accelerator (ACT Accelerator) to develop and produce new drugs, vaccines, and tests for COVID-19 (Silverman, 2020). But, by this time, the USA had announced plans to freeze funding to WHO and declined to join this international collaboration of nations, industry groups, and nongovernmental organizations, following instead its preferred strategy of "unfettered private sector innovation" (Heled et al., 2020).

The story of remdesivir is perhaps the most striking example of how American exceptionalism, in this case over drug regulation, can undermine global governance. Remdesivir is an antiviral developed in 2009 by an American company, Gilead, as a treatment for hepatitis C; it was then repurposed as a potential Ebola treatment but found to be less effective than other options. Subsequent studies indicated that it had antiviral activity in vitro against another coronavirus, MERS (Eastman et al., 2020: 674), and in January 2020 it was confirmed as one of the leading candidates to treat COVID-19. In May, remdesivir was approved in the USA under an Emergency Use Authorization (EUA) for use in severe cases via IV inpatient treatment (FDA 2020), an approval that was extended in August for mild and intermediate cases. Finally, remdesivir was fully approved on October 22 for hospitalized COVID-19 patients over 12 years of age.

The startling feature of this timeline is that several clinical trials had shown conflicting results (only one indicated that remdesivir appeared to shorten recovery times for severely ill hospitalized patients) and the WHO Solidarity trial, based on treatment of a diverse group of patients in 405 hospitals spread around 30 countries, posted interim results on October 15 showing that the drug had no significant impact on mortality, length of hospital stay, or need for ventilation among hospitalized patients (Consortium, 2020). Thus, the FDA's approval for remdesivir a week later ignored the largest international trial, "a global test of how remdesivir performs in complex real-world environments" (Hsu, 2020: 2). Moreover, Gilead knew of these results but the European Commission did not when it signed a joint procurement framework contract with the company, on 8 October, for a six-month supply of up to 500,000 treatment courses of remdesivir worth $1.2 billion (Cohen & Kupferschmidt, 2020).

The US Secretary of Health and Human Services, Alex Azar, had refused to guarantee that pharmaceuticals for COVID-19 would be affordable on the grounds that pricing restrictions would dampen investment in developing such treatments. Despite the fact that the development of remdesivir relied on extensive government-funded research (Cleary, 22 October 2020), Gilead was able to set a price of $3120 for a 5-day treatment course for patients with insurance. In the USA there is no cost-effectiveness mechanism to determine whether a drug provides value for money (Light, 2018; see also Boseley 2020), and value is often defined as what the market will bear. Beyond pricing, in early May 2020 Gilead made a key move to secure the market for remdesivir through a number of non-exclusive licensing deals with generic drug manufacturers in India, Egypt, and Pakistan—less than a couple weeks after the drug received its initial EUA and before India's government had even approved the drug for emergency use (Reuters Staff 2 June 2020). These agreements permitted the companies involved to manufacture and market remdesivir in largely low-income and middle-income countries and, significantly, eliminated the risk to Gilead of "parallel drug importing" whereby cheaper versions of remdesivir could be imported to high-priced markets like the USA (DeArment, 2020). Ironically, therefore, some of the international agreements originally designed to make drugs affordable for developing nations were used in this instance to secure a market for a drug that international authorities had deemed of uncertain effectiveness.

International oversight of vaccine development for COVID-19 has encountered similar obstacles. WHO played a leading role in the global effort to fight vaccine-preventable diseases, launching the Expanded Programme on Immunization (EPI) in 1974. A raft of initiatives, international agreements and public-private partnerships followed, including the Vaccine Alliance (GAVI), the Measles and Rubella Initiative (MRI), the Global Polio Eradication Initiative (GPEI), the International Finance

Facility for Immunization (IFFIm), and the Global Health Innovative Technology (GHIT) Fund (see Rull, 2015, also NRC, 2016). The WHO Global Influenza Surveillance and Response System ensures that strains in the vaccine match circulating viruses, so that every year there is a seasonal vaccine for influenza. But cracks in the international system were revealed in 2006, when Indonesia refused to send its human strains of avian flu to the WHO on the grounds that the world had not developed policies to ensure that frontline countries would be prioritized or receive a share of any pandemic vaccines that would result. Intellectual property rights were a major stumbling block to creating such policies (Rourke, 2020). But, after four years of negotiations, international agreement was reached on a pandemic influenza preparedness (PIP) framework that encourages states to share viruses and provide equitable access to vaccines. The framework was approved by the WHA in May 2011, but it is not legally binding, it applies solely to influenza, and there was uncertainty about whether it would provide a persuasive precedent so that low-income countries could benefit when vaccines against other diseases were developed.

In the event it did not. Perhaps the most dispiriting feature of this pandemic has been the way in which international agreements for vaccine development and distribution degenerated into a "Super Bowl of stock speculation" (Dayen, 2020) and a "race" among governments to manufacture the first vaccine and secure early access for their own citizens (Bollyky & Bown, 2020). Looking ahead in May at the prospects for a COVID-19 vaccine, experts mused that either "the world rediscovers multilateralism and works together, or there is a more piecemeal approach where every country is forced to fend for itself" (Milne & Crow, 2020). Considerable effort went into the search for a multilateral solution: the Coalition for Epidemic Preparedness Innovations (Cepi) had been set up in 2017 to help finance vaccines against infectious diseases and in April 2020 it joined with Gavi and WHO to coordinate COVAX, one of the pillars of the ACT Accelerator. This platform was designed to support the development and manufacture of COVID-19 vaccines as well as their equitable distribution, through pooled purchasing agreements, to all countries regardless of means (Berkley, 2020). Each nation would receive enough doses to vaccinate 20% of its population.

The project was undercut immediately when the United States and China declined to be members, although, in October, China eventually joined. Observers speculated that it did so to strengthen its sphere of influence, following its tendency to fill gaps wherever the USA moves out of global leadership roles (Adlakha, 2020). And the scheme began to unravel as most vaccine manufacturers sold their doses directly to national governments rather than supply COVAX for global distribution (Mullard, 2020). By mid-November wealthier countries had reserved 51% of various vaccine doses (So & Woo, 2020). COVAX then pivoted, changing its rules to accommodate the national purchases and permitting countries to buy enough vaccine for up to 50% of their populations. This step led to an increase in the number of countries that agreed to purchase vaccines via COVAX but, as Shadlen (2020) notes, it also encouraged further national deal-making so that richer countries have already secured the projected supply into 2021, further deepening global inequalities (see also Rauhala, 2020).

GLOBAL VERSUS NATIONAL GOVERNANCE

A pandemic, by definition, is a global phenomenon whose control prescribes an international division of labor and some coordination at the global level. At the moment, the principal vehicle for the latter is the WHO. Its core duty, as embodied in its Constitution and the IHR regulations, is to warn the world of approaching threats and to coordinate efforts to withstand them at the medical, technological, and social levels but, as I have argued, there is only so much that it can do, especially in the context of a fracturing world order. Nevertheless, global cooperation in the management of pandemics has

inched forward over the last two decades, and WHO has developed some new instruments and collaborative arrangements. The Global Outbreak Alert and Response Network (GOARN) developed in 2000, for instance, is a global partnership among public health institutions, laboratories, NGOs, and other organizations designed to observe and respond to epidemics. WHO provides much of the staffing and assistance for GOARN but does not directly fund it; and there are now proposals to enlarge and strengthen this network so that it can engage in emergency interventions at the local level that the WHO is not designed to undertake (Obstfeld, 2020).

These initiatives have not satisfied the demand for tighter governance of disease outbreaks, and calls for reform continue. Ebola produced a torrent of reports and recommendations (see Moon, 2015, and Kirchhoff, 2016) many of them centering on the WHO. For instance, it was advised to increase its funding to member states so they can respond better to disease emergencies; both the WHO and the European Union should integrate their different units into a single chain of command and develop teams of health experts who could be deployed at short notice in a humanitarian and health crisis.[4] There are still disagreements, however, between those who believe that WHO should scale back and return to its core function of providing technical advice and coordination (Carafano et al., 2015; Posner, 2020) and those who think that it should scale up to become a "health emergency manager." In this context, WHO initiated an internal reform process (Director-General, 2016) and detailed proposals have emerged about what needs to be done to strengthen the IHR (Gostin & Katz, 2016).

But COVID-19 has revealed that the focus on WHO as the sole instrument of global health governance may be misplaced. A pandemic creates problems of scale. Many of these require international cooperation but may not be resolvable by an international organization, no matter how broad its reach. This pandemic has rammed home the message, again, that stockpiles of PPE need to be preserved and updated, at regional, national, and supranational levels (Feinmann, 2020). Yet it was already clear after the 2014 Ebola crisis that neither national stockpiles nor the global manufacturing capacity for PPE would be sufficient for any larger pandemic (Patel et al., 2017). The other important lesson that the world is re-learning, belatedly, is that medical supply chains are global in nature. The shortages of PPE and therapeutics that led to competition among European member states, as well as among US states, arose because many of the drugs and most of the PPE required to combat COVID-19 are manufactured in India and China. The manufacture and distribution of vaccines depends on other supply chains for raw ingredients, syringes, and vials (Bollyky & Bown, 2020). Attention is now being devoted to the question of how to reshape medical supply chains and develop ones that are more "flexible, responsive and agile" but, as a recent European report noted, this would require the cooperation of multiple organizations involved in financing, regulating, producing, importing, wholesaling, and retailing—in the private sector as well as among governments and NGOs. And the authors wonder about "the incentives for stakeholders to join such a system?" (Sigala, 2020).

What is to be done? Michael Osterholm, the foremost pandemic doomsayer in the USA, believes the worst is yet to come in the form of a more lethal influenza pandemic. His recommendations for how to prepare for the future tend to be of the *sauve-qui-peut* variety—for example, that the USA should "lessen its dependence on China and India for its lifesaving drugs and develop additional manufacturing capacity in the United States itself and in reliably friendly Western nations" (Osterholm & Olshaker, 2020). By contrast, others suggest a more expansive and inclusive approach: if foreign aid is provided to developing nations, and if that aid provides "markets, monitoring, and mentoring," it can support the emergence and upgrading of local production of pharmaceuticals in places like East Africa (Chorev, 2019).

Authority for coping with future pandemics will of necessity remain dispersed. A bewildering array of multilateral organizations are working to protect global health. This proliferation can present problems—these organizations jockey for influence with WHO, making coordination even more

difficult (Cueto et al., 2019). But a multiplicity of actors can be an asset. The "international health regime,"[5] to which some refer, is not all of a piece; it comprises a variety of organizations charged with risk assessment or response and, as above in the case of BSE and food safety, different health threats and epidemics can engage and transform international directives and agreements at different moments, with different outcomes.

Ultimately, however, a significant part of governance has to rest in the hands of national policy-makers because responding to a pandemic entails a series of difficult choices on the ground with significant effects on lives and livelihoods. In many cases, these are life-and-death decisions (who should be the first candidates for vaccinations, who should receive scarce ventilators) and involve difficult trade-offs (whether to protect the public health or sustain the economy). WHO can provide advice, as we have seen with the rollout of the first vaccines for COVID-19 but, inevitably, as Lesley Jacobs (2007) observed with regard to the SARS epidemic, international rules and norms will be selectively adopted at a local level. Thus, the US Advisory Committee on Immunization Practices (ACIP) referenced the WHO SAGE report (Omer et al., 2020) but developed its own list of priority groups for vaccination, and the final decisions about who comes first have been left to the states. As is often the case in the American federal system, some states are rejecting CDC guidelines: Texas and Florida, as well as some other states with Republican governors, are prioritizing the elderly to receive vaccination over "front-line" workers (Stanley-Becker, 2020).

This last example indicates that politics matters but, perhaps more important, that differences in how nations have weathered the pandemic turn not so much on whether they "prepared," in the sense of making plans, or faithfully followed international directives, but on the nature of their preexisting social and political structures, which cannot simply be made anew when a crisis comes along. Despite some commentators' enthusiasm for federalism (Allen, 2020), the US system, coupled with the Trump administration's decentralized approach to the pandemic, has made it difficult for the nation to pull together in the face of disease. And other institutional features—such as the organization of scientific expertise, whether a robust division of labor exists among government agencies, and the character of the local health infrastructure—can fundamentally shape nations' strategies toward a pandemic, and send them in different directions, despite their access to exactly the same scientific information (Ziegler, 2020).

National trajectories are also shaped by a country's prior experience with disease. South Korea's rapid response to COVID-19, for example, was made possible in large part because of its "painful failure" with MERS (Moon, 2020). In the aftermath of that epidemic, South Korea increased the number of epidemiologists in local and national government and passed legislation giving the government authority to collect mobile phone and other data from infected people in order to track their movements. The country was thus well-placed to launch a massive testing and tracing program when the coronavirus arrived and it controlled the epidemic without the drastic lockdowns employed by China (Normile, 17 March 2020). But it faltered in the face of a recent surge in December cases which was "steady and nationwide," rather than the type of cluster that could be controlled, as before, with the focused testing and isolating campaign that South Korea had refined (Sang-Hun, 2020).

In the end, both national strategies and effective global action against disease depend on more than institutional arrangements. Good leadership helps. Jacinda Ardern, New Zealand's prime minister, was notably effectual by combining a playful, empathetic approach with the steely message that infringements of government policy would not be tolerated—she declared the Easter bunny an "essential" worker but forced a Health Minister who took his family to the beach during lockdown to resign (Menon, 2020).

Good leadership helps, but it is not the whole story. Ardern has had success partly because of the relatively trusting relationship between citizens and the state in New Zealand.[6] Appeals to civic

responsibility turn out to be more effective in nations where the electorate is not polarized, and a strong sense of community ensures that disasters are perceived as collective calamities rather than the fault of errant groups or countries. And this may be the key point. The Financial Times' question with which I began this commentary was less a genuine question about whether a supranational level of government was required to combat a pandemic than a statement about the lack of European solidarity this pandemic had revealed. In similar terms, many retrospective analyses of how the Ebola epidemic was handled identified problems with the "internal culture" of WHO, but argued in the main that resolving future pandemics would require more in the way of political will and resources from its member states (WHO, 2015). The conditions for a more successful "governance" of pandemics, therefore, may not rest solely on devising robust plans, or granting more power to international organizations, but rather on nurturing the national, regional, and international solidarities that are the requisites for cooperative action—and that is not only vital but harder to do.

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ENDNOTES

[1] And COVID-19 has further dampened that hope. See Fidler (2020).

[2] The stages start with infection among animals and end with stage six, a human pandemic.

[3] For an incisive discussion of the process by which these global agreements were reached, see Chorev (2012).

[4] The EU established such teams as part of the European Medical Corps (EMC) in February 2016, and WHO included an Emergency Medical Teams initiative in its Health Emergencies Programme (WHE) of 2016.

[5] This term is probably a misnomer: rather than a single "international health regime" or "global health security program", the system of governance that currently exists in health is probably closer to what Keohane and Victor (2011) have described as a "regime complex" – as opposed to a comprehensive integrated regime, that has emerged from efforts to manage and regulate climate change. (For an interesting discussion of two potentially complementary global health regimes, see Lakoff, 2010). The nature of such an entity and the mechanisms by which it might coordinate or govern the strategies of individual nations is, however, beyond the scope of this paper.

[6] See Bosancianu et al., (2020) for the beneficial effects of trust placed in states by citizens in this pandemic.

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